MU News Bureau

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MU researchers invent system for predicting falls in the elderly

Generated from News Bureau press release: Sensor Systems Identify Senior Citizens at Risk of Falling Within Three Weeks


COLUMBIA, Mo. -- Falls send nearly three million older Americans to the hospital each year. Their injuries, ranging from broken hips to brain trauma, cost $31 billion to treat. For many, it's the end of their independence. But what if you could predict someone is going to fall and intervene? It's happening in Columbia.

Home is where Ann Gowan's heart is. It's also where the retired gerontologist knows her brain needs to be.

"I have enough to do in the house that my brain keeps going," said Gowan.

Since the 88-year-old fell on her driveway and broke an ankle, she's been more aware that another fall could land her away from home in nursing care.

Dr. Marjorie Skubic, a University of Missouri engineering researcher, saw what happened after her mother-in-law fell.

"Her shoulder never healed properly, so she was in pain for the rest of her life," said Dr. Skubic.

Dr. Marilyn Rantz, a M.U. nursing researcher, saw what happened to her mother.

"She lay on the floor for eight hours and she was dead within six months," said Dr. Rantz.
Necessity may be the mother of invention, but in this case, desire by the researchers to help others led to a system for detecting and even predicting falls. Gowan has motion detectors in every room of her home.

"We also have a depth sensor that gives you a three-dimensional silhouette of the person walking around the environment," said Dr. Skubic.

Dr. Skubic shows an image of Gowan walking into her bedroom. There's nothing Gowan has to wear. The system, without anyone monitoring the images, can detect a fall. An e-mail alert goes to staff at TigerPlace, a retirement residence in Columbia.

"And the video appears...I can see the person actually fell," said Dr. Rantz as she looks at an alert on her mobile phone.

The system can also predict a fall is likely to occur. The depth sensor picks up walking patterns including speed, stride time and length.

"We were able to show that changes in walking speed and stride length over a relatively short period of time are a strong predictor that somebody is going to fall in the next three weeks," said Dr. Skubic, referring to a study of TigerPlace residents.

"I was so stunned I broke into tears because I thought this -- I really could have had this information for my mother," said Dr. Rantz.

When walking changes occur, the system triggers alerts.

"I would have been able to arrange for physical therapy, perhaps get her to balance clinic," said Dr. Rantz.

Possibly preventing a fall.

Gowan also has a sensor in her bed that measures her pulse, breathing rate and restlessness.

"They called once and said, 'Are you okay?' And I said, 'You know, as a matter of fact, I had an infection the other day and I'm not really as well as I had been, and you picked that up?' And they said yes," said Gowan.

The researchers say changes in walking patterns can also be an indicator of health problems in addition to the higher fall risk.

"Our perspective has never been let's figure out when we should kick mom out of her house," said Dr. Skubic.

It's all about keeping her there.
"It's giving me peace of mind. Giving me and my children peace of mind. I think Silicon Valley has their eye right on it. Yea, it's a big one," said Gowan.

Dr. Rantz says the system should be widely available in a year or so and will likely cost more than $200 a month. She expects the price will drop over time.

University of Missouri activists say protests brought change

COLUMBIA, Mo. (AP) — One of the founding members of a group of students who led protests on the University of Missouri campus over racial matters says progress has been made in the year since the turmoil.

The Columbia Daily Tribune reports that Concerned Student 1950 led a demonstration that ultimately forced the resignation of the University of Missouri System president, but has since disbanded.

Reuben Faloughi, one of the founding members of Concerned Student 1950 and a doctoral student, says the events of fall 2015 took a toll on everyone in the group, which attracted attention and pressure from different angles. The group eventually stopped holding demonstrations and became less visible.

Faloughi says a conversation was started about racial and diversity issues on campus, but says substantive change is complex and takes time.

Loftin reflects on Wolfe, last days in office

Former University of Missouri Chancellor R. Bowen Loftin said his relationship with his boss was good until a few weeks before they each resigned amid campus upheaval that drew international attention.
In an interview last week, Loftin took issue with reports that his relationship with Tim Wolfe, former UM System president, had been toxic for months before both men announced their resignations on Nov. 9 last year. Sources told the Tribune shortly after the men quit that Wolfe and Loftin had long-simmering issues of distrust and animosity that would have resulted in one or both of them leaving their roles had the protests not happened.

Loftin disputed that contention. “We got along very well up until a few weeks, maybe two or three weeks, before November the ninth,” Loftin said.

The men met regularly throughout Loftin’s tenure, he said, and had spoken for hours before the protests. Loftin points to a positive annual review in summer 2015 from Wolfe as proof he and Wolfe had gotten along.

He did, however say their relationship was not without problems. Loftin said Wolfe at different times during his two-year stint as chancellor tried to take a strong hand in Columbia campus management.

“The relationship between your flagship leader and the system leader can be oftentimes difficult because it’s hard for the person in the system not to want to run the prized jewel, the flagship campus,” he said. “That’s not just me. That’s historic.”

Several deans at MU had sought Loftin’s removal and had met with Wolfe in October 2015 in an attempt to get Loftin fired. Lengthy closed sessions at UM Board of Curators meetings in September and October 2015 led to speculation that Wolfe was about to fire the chancellor.

Wolfe declined to comment for this story when reached by phone. “I’m not commenting on anything about my time at the university,” he said before hanging up.

Wolfe said in a widely publicized email he wrote months after his resignation that Loftin had turned activists against him after learning in September that his own job was at risk. Loftin at the time said Wolfe’s claim was inaccurate.

Wolfe asked Loftin to resign in an effort to appease the activists on campus, Loftin said in the interview last week.

“He was looking for a way for this to go away, for this to be resolved, and he saw my departure as a way to do that,” Loftin said. “Not sure that was very effective.”

Concerned Student 1950’s protests against racism on campus and Wolfe’s leadership sped up both men’s departures. Wolfe, a businessman and former president of the software company Novell Americas, was hired as system president in 2011. By the time he resigned, he had lost support among many people in the university system.

Ben Trachtenberg, chairman of the MU Faculty Council, said it’s difficult for anyone without experience in academia to do well as the leader of a university system.
“One of the main critiques people made about Tim Wolfe was that he didn’t seem to grasp how the university worked, which isn’t a character flaw, it’s just not the experience he had,” Trachtenberg said.

The Board of Curators last week said it had hired University of Connecticut Provost Mun Choi to be the next system president. Choi will start March 1.

Concerned Student 1950’s protests had nothing to do with his resignation, Loftin said. The timing was coincidental, but he said he chose to leave because of the deans’ lack of confidence in him. Nine deans had publicly called for Loftin’s ouster in a letter, distributed the day before Loftin quit, that said the chancellor had created a “toxic environment through threat, fear and intimidation.”

“It was not due to my poor handling, or wonderful handling, either one, of the racial incidents on campus, as far as I know,” Loftin said of his resignation.

Loftin earned his full chancellor’s salary — $459,000 — until May 1, when he started earning $344,000 per year working in MU’s Office of Research as director of national security research development.

In the weeks leading up to Loftin’s and Wolfe’s resignations, Loftin had shown support for the student protesters. He said the only source of tension between him and the activists was because of disagreements about how quickly changes could be made.

Reuben Faloughi, one of the 11 founding members of Concerned Student 1950, said his group first focused on Loftin, but turned their attention to Wolfe after Wolfe refused to engage the activists when they stopped his car during the 2015 Homecoming parade.

“Loftin, he was the big fish, so to speak, and then after the Homecoming demonstration, Wolfe became priority because we began to realize if Loftin can get away creating this toxic campus culture,” then the problems didn’t stop with him, Faloughi said.
COLUMBIA, MO. • Monday marked the one-year anniversary of the tweet that changed everything for the Mizzou football program. It was last Nov. 7 when African-American players announced their allegiance to the racially driven protest on MU’s campus.

“We will no longer participate in any football related activities until President Tim Wolfe resigns or is removed due to his negligence toward marginalized students’ experiences,” safety Anthony Sherrills posted on Twitter that night, accompanied with the photo of himself and more than 30 teammates locked arm in arm.

The team boycott ended two days later when MU graduate student Jonathan Butler, a leader of the Concerned Student 1950 protest group, ended his hunger strike after Wolfe stepped down as the university system president. The Tigers resumed their season and lost two of their final three games to finish 5-7.

Few high-profile campus figures from last fall are still around in the same roles. Chancellor R. Bowen Loftin resigned and took another position at the university. Later that week, football coach Gary Pinkel revealed his cancer diagnosis and announced plans to retire at season’s end. Athletics director Mack Rhoades was gone nine months later, leaving for the same position at Baylor.

But most of the football players at the heart of the boycott are still on the team, including three of the most outspoken leaders of the movement: Sherrills, wide receiver J’Mon Moore and defensive end Charles Harris.

Interviewed Monday, Harris said he has no regrets about last fall’s actions and looks back on the protest with pride and confidence. He described the decision to boycott as “taking a risk in terms of the whole team, seeing if we'll all be in it together or split apart.”

“It’s something that changed us for the better and made us stronger as a team,” linebacker Donavin Newsom added.
A year after last year’s protest, linebacker Brandon Lee described the mood on Mizzou’s campus as “peaceful.”

“There hasn’t been many distractions on campus or anything like that,” he said. “It’s just students going to school and doing things the way they should be done.”

Special Report: MU's response to hazing and Greek sanctions


COLUMBIA, Mo. - Scenes of protest on the University of Missouri campus in November 2015 didn't stop Michael Zingale's son from deciding on the school when he started the next fall.

Zingale himself had considered MU 30 years ago. For his son, he liked its distance from home in Chicago, its proximity to what Columbia had to offer downtown and the size of the campus. In the first week, Zingale's son told his father he and his roommate were interested in joining a fraternity.

"We talked about, we said let's get the grades where they should be, and let's maybe look at a second semester. But he really pushed for the wanting to join, and we let in," Zingale said, who asked ABC 17 News to keep his son's name private. "We should have held down firmer."

His son eventually pledged Kappa Alpha Order, a house at the corner of College and University Avenue. Zingale admits his son should have done more research when looking for a fraternity, but said and his wife didn't know much about Kappa Alpha before he started there.

September 27 made them aware.

"He never had a reason to say anything about ‘Here’s what’s going on, here’s what I’m doing,’” Zingale said. It was just like a sucker punch coming out of Columbia, Missouri. It’s like, ‘Here’s your kid and he’s near death, and you better get here pretty quickly.’ And then here we come."
KA remains on suspension for what happened that night, while the Office of Student Conduct investigates it as a "hazing." Their son had been loaded into their ambulance that morning with a blood alcohol content of .45, five times the legal limit to drive, three breaths per minute and a cold touch to his skin. A Kappa Alpha Order incident report claims Zingale's son and other "pledges," the term used for potential new members of a fraternity, challenged each other to chug vodka in the house around 2 a.m. Members carried him to a room to sleep, but couldn't wake him the next morning. It makes no mention of the condition the Zingales say medics found him.

"That's really the problem that we have," Zingale told ABC 17 News. "Because he could have been dead on that floor, in that room, by himself, and we wouldn't know anything. And that's how he leaves this planet. And that's not fair."

At the time, Kappa Alpha was placed on probation for another alcohol-related incident at the house. Hard liquor is banned in Greek houses, an policy passed by the IFC in 2015. Another sanction from the school, such as having hard liquor, would lead to stricter penalties from the school, according to the University's policies.

Greek organizations face three levels of punishment: probation, suspension or withdrawal of recognition. Withdrawal means the school no longer considers that organization a student group, and revokes any use of school property or participation in school-sponsored activity, like Homecoming or Greek Week. Groups can often reapply in the future to become a student organization. Suspension carries the same punishment, until the school completes its disciplinary process with the group.

ABC 17 News went through nine school years' worth of sanctions to Greek organizations, and found at least two instances of "hazing" sanctions against fraternities already on probation or suspension, only to have those extended.

Kappa Sigma had its suspension extended by a semester when the University found it responsible for "hazing" in 2014.

In Spring 2013, Pi Kappa Alpha was sanctioned for "compliance" and "controlled substance at chapter house." It received probation, slated to end in May 2014. The following Fall semester, it was sanctioned for "hazing activities, endangering the welfare and safety of pledges, condoning physical abuse and compliance." The University extended its probation to December 2014, and revoked its ability to host "alcohol events" the next semester.

The Alpha Nu Chapter of the Pi Kappa Alpha International Fraternity was found in violation of Fraternity Standards in 2013," Brent Phillips, chief marketing officer for the Pi Kappa Alpha national organization. "The Chapter was issued conditions both punitive and educational by the International Fraternity. Since then, the Chapter fulfilled those conditions and is operating in good standing with the International Fraternity." Phillips did not specify what happened in 2013 to warrant the sanctions.

The University has only withdrawn recognition four times in nine school years, each for a fraternity. Three of them have since returned as active chapters, while Sigma Pi is in its first of
four possible years of withdrawal, so long as it continues to work Greek Life, according to the university. Since Greek organizations own the houses near campus, the university no longer has "jurisdiction" over them. Members can continue to live in the house, without fear of Greek-specific sanctions.

MU spokesman Christian Basi said there is no "formula" for delivering sanctions - probation doesn't automatically lead to suspension or withdrawal of recognition. Each situation is determined "case-by-case," and "any discipline is determined based on the evidence gathered and any additional information provided by the organization."

Fraternities have been sanctioned for hazing 17 times since 2007. Kappa Alpha was last cited in Fall 2010, and placed on a year-long probation. It did not violate any policies in that year, but has amassed nine sanctions in nine school years. The university does not specifically list which student groups are on probation or suspension or which ones are under investigation. Zingale said that information would be useful for both prospective members and parents.

"There is nothing that's real time," he said. "It's like after a semester is over. Which is too late, in a situation like this."

When asked for comment on MU's administrative process, KA Assistant Executive Director for Advancement Jesse Lyons wrote, “Kappa Alpha Order respects the University of Missouri, its conduct process and the administrators on campus. Kappa Alpha Order has its own process and investigative procedures and works to collaborate with each university. For the particular allegations this fall, we took an extraordinary step of hiring an independent investigator. We also continued open communications with the family involved, law enforcement, and the university, on our investigation. Our chapter president was forthcoming and supportive to both the campus processes and ours. From the beginning, we partnered with the University in both this fact-finding process and hopefully in the outcome."

Zingale's son chose to leave the school in October. He said the school never offered any help to his son in that time, such as access to mental health services. He hopes the school would consider stiffer punishments for Greek groups that violate the "hard" alcohol policy to discourage binge drinking of liquor like vodka.

The last reported hazing death at the University of Missouri occurred in 1940 at an unrecognized fraternity. While Zingale's son lived, he said he's spent time trying to put himself in the shoes of other parents who lost their child.

"And I think about what those people are going through. So…I couldn't imagine that, I couldn't imagine the school and the system letting it go on," Zingale said.
Missouri School of Journalism part of national voter access coverage

COLUMBIA - The Missouri School of Journalism joined multiple national media outlets Tuesday in a new initiative intended to combat voting issues.

The First Draft Coalition is a part of ProPublica's greater Electionland coverage, which is "a project involving 100 newsrooms across the country to cover voting access, excessive wait times, suspicion of fraudulent votes being cast and other problems in real time," according to a news release.

MU associate professor Amy Simons is leading a team of more than 45 students who will cover the voting process in real time via social media outlets such as Twitter, Facebook and Instagram.

"I would call it social listening," said MU journalism student and participant Amanda Byler. "Being able to see and go through what the public is seeing and being that filter between social media and what the average American voter is going to see at their polling place and then what journalists are going to report on what they're seeing."

Students on the team will sift through social media posts from eight different states, including Missouri, searching for instances of voter access issues. The team will then work to verify the validity of those posts and pass along relevant information to local news outlets, which can then cover those issues more in-depth.

"Often, when it comes to election coverage we focus too much on what the candidates are doing throughout the day and what their campaigns are doing," Byler said. "I think it's important to remember that there are voters out there that do have issues with long lines and voter identification and different things like that."

Fifteen states around the nation will test new election legislation for the first time in a presidential election this year, according to the Electionland release. It will be the first presidential election since the U.S. Supreme Court made changes to the Voting Rights Act in 2013.
"I’ve covered elections my entire career, but this will be the first time I focus my attention on the American people and their experience at the polls," Simons said in a news release.

Byler said one of the main concerns is making sure there are no politically charged motivations behind the posts she finds, and verifying that the issues are actual problems voters are facing.

Voters who experience issues at the polls can use the hashtags '#Electionland,' '#WeAreWatching' and '#SecureTheVote' on social media. You can also text 'ELECTIONLAND' to 69866 to participate.

How the US Senate could swing to the Democrats

Key races are being defined more by presidential politics than by state-level concerns, according to political science experts.

By Steven Porter, Staff NOVEMBER 7, 2016

Pollsters looking ahead to Tuesday's elections predict the odds that Democrats will win enough seats in the US Senate to regain a majority are a little better than 50 percent, thanks in large part to the relatively high number of Republican-held seats at risk.

Of the 34 seats involved in this year's contest, 24 are presently occupied by Republicans who won six-year terms in the 2010 mid-term election, leaving the GOP with a wide flank to defend. And polling data suggest only two of the 10 up-for-grabs seats held by Democrats could feasibly flip to Republicans.

If the Democrats can pick up five additional Senate seats, they will emerge with a majority. But if the party's state-by-state Senate campaigning proves successful, it
might have more to do with the race for the White House than anything else, according to political scholars.

"I think the local issues have really been swamped by the national campaign, and that, of course, is the risk you always have when there's a presidential contest at the top of the ballot," Peverill Squire, a political science professor at the University of Missouri, Columbia, tells The Christian Science Monitor in a phone interview.

Missouri is among eight states with Senate elections considered "toss ups," according to aggregate polling data compiled by Real Clear Politics. The others are Pennsylvania, Wisconsin, Indiana, Nevada, New Hampshire, Florida, and North Carolina.

Harry Enten, a reporter with data journalism site FiveThirtyEight, lists Senate races in two of those states – Pennsylvania and Wisconsin – as at least leaning toward the Democrats. The most interesting Senate contests to watch, he says, will be in three states: Nevada, New Hampshire, and especially Missouri.

"Missouri is perhaps the most interesting of the three because it's the state where we have the best chance of seeing one party win the Senate race and the other win the presidential race," Mr. Enten wrote.

Missouri's incumbent Sen. Roy Blunt (R) is defending his seat against Democratic challenger Jason Kander, Missouri's secretary of State, who is an attorney and Army veteran. Although the deafening presidential campaigns of Republican nominee Donald Trump and Democratic nominee Hillary Clinton have dominated political discourse in recent months, both Senator Blunt and Secretary Kander have raised a wide range of policy issues that matter to Missouri voters, Dr. Squire says.
"But I think it's probably been difficult for either Blunt or Kander to focus on state-level issues when everything is going to be wrapped around support for either Trump or Clinton," Squire tells the Monitor.

This compression of presidential and senatorial politics has cropped up in other key states as well. In Nevada, for instance, where four candidates are vying for the seat vacated by the retirement of Sen. Harry Reid (D), the Senate race seems to be more about presidential politics than anything else, says Kevin Banda, an assistant professor of political science at the University of Nevada, Reno.

"Issues probably don't matter all that much in terms of how people actually make up their mind when they are deciding whom to vote for. People just don't pay that much attention," Dr. Banda tells the Monitor. The fact that Nevada voters have a hard time ignoring Mr. Trump could hurt the Republican candidate for Senate, Joe Heck, while giving his main opponent, Democrat Catherine Cortez Masto, an edge, Banda adds.

Similarly, the Trump effect on New Hampshire's Senate race has spelled hardship for Republican incumbent Sen. Kelly Ayotte, who is neck-and-neck with Democratic challenger and Gov. Maggie Hassan.

"The biggest state-level concern has been actually Hassan's eagerness to associate Ayotte with Trump," Frank Cohen, an associate professor of political science at Franklin Pierce University in Rindge, N.H., tells the Monitor. Although the candidates have sparred over substantive matters of concern to the state's voters, including the economic recovery, job growth, and security concerns, the two candidates have frequently postured themselves in association and dissociation to presidential candidates.
Mary Malone, an associate professor of political science at the University of New Hampshire, says this interplay reflects the blurred lines between the state's priorities for its senators and its priorities in a president.

"I think that they're intertwined," Dr. Malone tells the Monitor. "I think that Trump's misogyny has really most certainly led to a lot of activism for women, and I think that his misogyny – especially when contrasted with electing the first female president – has really activated the women's vote."

Trump's spotlight has drawn attention to Senator Ayotte's record on women's reproductive rights, which includes voting to defund Planned Parenthood, Malone says. And the spotlight that follows Clinton, who has weathered a number of scandals during her campaign, directly affects Hassan's bid as well.

These three key states – Missouri, Nevada, and New Hampshire – will be among the most closely watched races as results pour in on Tuesday night, because they could be the key to unlocking a Democratic majority, Enten wrote for FiveThirtyEight.

"If Democrats win two of these three, it's difficult to see how they don't end up with at least 50 Senate seats," he wrote. "If they don’t, they’ll have to pick up at least one seat that appears to be trending away from them."

In the event that the Democrats net an additional four seats but fall short of a Senate majority – Enten predicts a 16 percent chance of that happening – then the Senate will be split evenly, 50-50, between Republicans and Democrats (counting two independents who caucus with the Democrats). In the case of a tie, the vice president casts the deciding vote.